

**PROPOSED UNDERGROUND STORAGE TANK (UST)
RELEASE CASE CLOSURE EVALUATION SUMMARY**

LUST Case File #: 4382.01-.04
Facility ID # 0-001297
La Paz County

Circle K #742
8661 Riverside Drive
Parker, Arizona 85344

Background:

The facility currently operates as a Circle K convenience store with retail petroleum. The former Phillips 66 station operated two 5,000-gallon unleaded gasoline (USTs) that were installed April 9, 1996. On March 18, 1996 two USTs and a single dispenser island were excavated and removed from the site. The excavation was enlarged to accept the new UST and dispenser island configuration. Four leaking UST (LUST) releases assigned in March 1996 are associated with the UST tank pit and the piping to the dispenser island.

The UST Owner, Phillips 66 Company (P66), began site characterization in 1996 including the installation of soil borings and groundwater monitoring wells MW-1 through MW-7. A Site Characterization Report was approved by ADEQ September 3, 1998. Additional groundwater monitoring wells were installed in 2012 and 2017. Vapor extraction (VE) wells were installed in 1999 and 2003, with additional air sparge (AS) wells installed in 2003 and 2004.

Removal or control of the source of contamination:

Remedial activities began in 2002 and continued through 2015. Approximately 681 cubic yards of petroleum contaminated soil was removed from the area of the two 5,000-gallon USTs in 1996. A soil vapor extraction (SVE) and AS system operated between September 2002 and November 2003. Approximately 1,170 pounds (equivalent to 167 gallons) of volatile fuel hydrocarbons were removed during this period. The remedial system was reconfigured and ten additional AS wells were installed. The combined SVE/AS system operated from September 2008 to August 2012 and a combined total of 1,509 pounds (equivalent to 216 gallons) of volatile fuel hydrocarbons were removed. The groundwater was also treated with oxygen releasing compound (ORC®) socks in wells VE-1 and VE-2 between August 2014 and September 2015.

In January 2016, ATC on behalf of P66 advanced four soil borings (CB-4 through CB-7) in the vicinity of the current tank basin. Soil borings CB-4 and CB-7 were advanced to a depth of approximately 10 feet bgs. Samples for laboratory analysis of volatile organic compounds (VOCs) and tetra-ethyl lead (TEL) were collected at approximately five and 10 feet below ground surface (bgs). Subsurface soils encountered at soil borings CB-4 consisted of interbedded low plasticity clay and clayey sand to 10 feet bgs; at CB-7 fill material was encountered to a depth of approximately four feet bgs underlain by low plasticity clay to 10 feet bgs. Soil borings CB-5 and CB-6 were advanced near the approximate eastern end of the former USTs (LUST File Nos. 4382.01 and 4382.03). Soil borings CB-5 and CB-6 encountered refusal at one foot and three feet, respectively. No soil samples were collected at soil boring locations CB-5 and CB-6. Laboratory analytical data indicate adsorbed phase VOC were not detected at concentrations exceeding their ADEQ established residential Soil Remediation Level (rSRL) in the soil samples collected at boring locations CB-4 and CB-7. TEL was detected in the soil samples collected at 10 feet bgs (0.13 milligrams per kilogram [mg/kg]) at boring CB-4 and at 10 feet bgs (0.045 mg/kg) at boring

CB-7. It should be noted that the depth to groundwater in the vicinity of soil borings CB-4 and CB-7 (as measured at monitor wells MW-1, MW-8 and VE-2) averages seven to eight feet bgs.

Per ADEQ's Case Closure Guidance, dated June 10, 2016, ATC also collected groundwater samples on July 5, 2016 at the location of MW-1 for laboratory analysis of polynuclear aromatic hydrocarbons (PAH) using EPA Method 8270C-SIM and TEL using McCampbell Analytical Inc.'s Organic Pb Method. PAH were detected at concentrations exceeding their respective minimum laboratory method detection limit (MDL) but less than their respective minimum laboratory reported detection limit (RDL) including; benzo(a)pyrene; fluoranthene; naphthalene; pyrene; benzo(g,h,i)perylene; and, phenanthrene. TEL was not detected at a concentration exceeding its minimum laboratory MDL.

Characterization of the groundwater plume:

There are seven groundwater monitor wells (MW-1 through MW-7) and three vapor extraction wells (VE-1 through VE-3) located on the site that have been sampled at periodic intervals since June of 1996. Monitoring of these wells determined that groundwater currently occurs at a depth of approximately 6 to 9 feet bgs and flows to the northwest at an average of 0.0037 foot/foot.

ADEQ issued a LUST Case Closure Notice of Decision on May 8, 2021. ADEQ indicated that Methyl tert-butyl ether (MTBE) concentrations greater than the Tier 1 Corrective Action Standard at the locations of VE-1 and MW-4 and BIOSCREEN analysis results suggesting a maximum MTBE plume length of 230 feet prevented LUST case closure under Arizona Administrative Code R18-12-263.04.

Atlas (formerly ATC) acquired a right-of-way access agreement and drilling authorization from Arizona Department of Water Resources (ADWR) to install two groundwater monitor wells on the west side of Riverside Drive, down gradient of LUST file nos. 4382.01-.04. Public utility markings indicated the presence of subsurface facilities extending from the south-bound lane of Riverside Drive to the edge of the right-of-way boundary with private property which prevented the installation of monitor wells in the proposed area.

Atlas and ADEQ attempted to coordinate with the owners of two properties for access agreements to either install a groundwater monitor well or collect a groundwater sample using a Hydropunch® or similar method. P66 mailed initial request letters and license agreements to the property owners on December 21, 2020. After receiving no response from either property owner, P66 mailed a second access request letter on January 14, 2021. On January 22, 2021 P66 received notice one property owner did not intend to grant site access. On January 26, 2021, the second property owner indicated that he also did not intend to grant site access.

ADEQ mailed an offsite access request letter and an access agreement with self-addressed, stamped envelopes to both property owners on April 26, 2021. A follow-up off-site access request and access agreement was mailed to one property owner on June 2, 2021. Both property owners declined to execute an access agreement following the aforementioned efforts by ADEQ. ADEQ community liaison Jaime Hernandez met with both property owners in March 2020 but was unable to get either to sign access agreements.

Reasonable attempts have been made by Atlas and ADEQ to obtain offsite access for further characterization of MTBE under A.R.S. 49-1022. Further characterization to the west-northwest cannot be obtained due to the presence of the Colorado River.

Groundwater plume stability:

The GSI Mann-Kendall Toolkit Microsoft Excel based software was utilized to run a trend analysis to determine if the dissolved MTBE plume is increasing, stable, decreasing or has no trend over time. Analysis of current and historical groundwater laboratory analytical data using the Mann-Kendall statistical test indicates a decreasing benzene trend at VE-2 and decreasing MTBE trends at MW-4 and VE-1. MTBE concentrations show a decreasing trend in MW-1 and MW-3 with a probably decreasing trend at MW-2. MTBE at MW-9 shows a stable trend, whereas there is no trend at MW-7 and MW-8. According to the GSI Mann-Kendall Toolkit User's Manual "no trend" means a "non-increasing condition". It should be noted that MTBE has not been detected at concentrations exceeding the Tier 1 Cleanup Standard between November 24, 2014 and July 23, 2021 at wells MW-1, MW-2, MW-3, MW-7, MW-8, MW-9, and VE-2. Mann-Kendall analysis results indicate that the only location of an increasing MTBE trend is at MW-5. However, MTBE has not been detected at MW-5 at a concentration exceeding its Tier 1 Cleanup Standard since groundwater samples have been collected at that location and analyzed for MTBE.

Natural Attenuation:

Degradation of petroleum hydrocarbons in groundwater can proceed via aerobic or anaerobic microbial processes. Bacteria present in soil and groundwater obtain energy for cell production and maintenance by facilitating thermodynamically advantageous oxidation-reduction reactions involving the transfer of electrons from electron donors to available electron acceptors. When sufficient dissolved oxygen (DO) is present in groundwater, biodegradation of hydrocarbons proceeds aerobically (with oxygen as the electron acceptor). As oxygen becomes less available anaerobic microorganisms consume electron acceptors in the following order of preference: nitrate, manganese (IV), iron (III), sulfate, and carbon dioxide. Anaerobic biodegradation processes are thus associated with decreased concentrations of nitrate and sulfate, increased concentrations of dissolved manganese and ferrous iron, and production of methane within the plume (i.e., elevated when compared to background.)

Monitored natural attenuation parameters were sampled on February 18, 2020 and July 22, 2021 and report the following:

- Nitrate concentrations in the source area are high (67.5 milligrams per liter [mg/L]) and nitrate concentrations within the source area are low (<0.1 mg/L);
- Ferrous iron is present at the Site with highest concentrations in the source area (MW-8 at 1.91 mg/L) and lowest concentrations downgradient (MW-5 at 0.015 mg/L) and cross-gradient (MW-2 at 0.015 mg/L);
- Sulfate is present at the Site with highest concentrations downgradient (MW-7 at 9,280 mg/L) and lowest concentrations to the in the source area (VE-2 at 2.46 mg/L);
- Methane is present in limited concentrations in the source area wells (MW-3 at 0.113 mg/L, MW-8 at 0.167 mg/L, and VE-2 at 1.13 mg/L) and downgradient (VE-1 at 0.0213 mg/L) indicating a strongly reduced environment remains in the source area. Methane was not detected in the remaining Site-associated wells.

Dissolved oxygen (DO), temperature, pH, and oxygen reduction potential (ORP) have been sampled from June 2018 till July 2021. The DO concentration in well with benzene over AWQS (VE-2) show that anaerobic conditions (<0.5 mg/L DO) are present. Benzene can degrade under aerobic or anaerobic conditions in groundwater. The lack of nitrates and sulfates in the source area and presence of methane indices that anaerobic biodegradation process of methanogenesis is occurring in the release area.

BIOSCREEN models were revised using current laboratory analytical results including monitored natural attenuation parameters (DO, nitrate, sulfate, manganese and ferrous iron). The models predict a maximum down gradient distance for the benzene plume of 117-130 feet in 8 years and a
February 2022

maximum down gradient distance for the MTBE plume of 162-180 feet in 12 years. Assuming the MTBE plume travels from the release area in the direction MW-4, the maximum lateral extent of the plume is east of Riverside Drive, approximately 85 feet north of the Circle K property boundary.

Threatened or impacted drinking water wells:

The ADWR records database includes 42 registered wells located within a half mile radius of the Site. Of the 42 registered wells, three were identified as non-exempt wells used for irrigation and domestic purposes. Two of the three non-exempt wells have been abandoned. The nearest domestic well is located approximately 1,600 feet south-southwest of the Site and is owned by an inactive drinking water system Graham Water Service (AZ04-14-010). Forty groundwater monitoring wells are associated with the Project Site however, many have been abandoned. Three wells are identified as other have since been abandoned.

A surface water inlet for drinking water system AZ04-15006 (EPCOR – Moovalya Keys) is located within the ½ mile radius approximately 1,902 feet to the north-northwest. As of April 4, 2021, the entry point to the distribution system (EPDS) associated with this inlet was non-detect for all VOCs. A downriver surface water inlet for drinking water system AZ04-15010 (EPCOR – Lakeside) is located outside the ½ mile radius approximately 4,000 feet to the southwest. As of April 4, 2021, the EPDS associated to the inlet was non-detect for all VOCs.

EPCORE – Moovalya Keys provides potable drinking water to the site and surrounding area. A surface water inlet C150060SI is the only source of water for this drinking water system.

Other exposure pathways:

Residences are located west and within approximately 150 feet of the Site. Other potential receptors such as day care facilities, schools, nursing homes, and health care facilities, were not identified within a ½ mile radius of the Site.

Results of the soil gas survey (conducted on January 2016) and subsequent Johnson-Ettinger Model indicated a cumulative cancer risk of 1.639E-07 and a hazard risk of 1.251E-1 for all VOCs modeled (petroleum and non-petroleum). Results of the inhalation air model indicate the estimated cumulative risk and hazard quotient for petroleum related chemicals of concern to be less than the Site-Specific Risk and Hazard Quotient standards referenced in Arizona Administrative Code R15-7-206(D).

Soil samples collected between 5 and 10 feet had no VOC contamination present over an applicable regulatory standard. Although TEL was detected about standard, these samples were collected below the water table (average of seven to eight feet bgs), so dermal contact and ingestion are not complete exposure pathways.

Requirements of A.R.S. §49-1005(D) and (E):

The results of the corrective action completed at the site assure protection of public health, welfare and the environment, to the extent practicable, the clean-up activities completed at this site allow for the maximum beneficial use of the site, while being reasonable, necessary and cost effective.

Other information that is pertinent to the LUST case closure approval:

The facility and LUST files were reviewed for information regarding prior cleanup activities, prior site uses and operational history of the UST system prior to removal.

Groundwater tables:

MW-1 (Source)

Total Depth: 35 feet bgs Screened Interval: 5 - 35 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to Water (feet)
June 1996	700	Not Analyzed	7.94
September 1997	13,000	Not Analyzed	7.45
March 1998	2,800	Not Analyzed	7.69
December 1999	2,200	Not Analyzed	8.14
June 2002	64	190	8.11
SVE/AS Began September 2002			
November 2003	48	590	8.02
SVE/AS Ends November 2003			
June 2008	51	780	7.73
SVE/AS Began September 2008			
August 2009	12	6.2	7.96
March 2010	6.9	3.3	7.81
August 2012	< 1.0	5.9	7.9
SVE/AS Ends August 2012			
November 2014	< 1.0	1.6	8.05
July 2016	< 0.5	0.86	7.81
December 2019	< 1.0	0.932	7.82
February 2020	< 1.0	0.737	7.95
December 2020	< 1.0	0.59	8.05
July 2021	< 1.0	0.379	7.7

VE-1 (Source)

Total Depth: 20 feet bgs Screened Interval: 5 - 20 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to Water (feet)
February 2003	81	850	7.02
SVE/AS Ends November 2003			
November 2004	2	10	7.62
November 2005	3	270	8.19
June 2007	< 1	96	7.76
SVE/AS Began September 2008			
December 2008	1	170	7.57
December 2009	< 1	15	7.17

December 2011	< 1.0	2.5	7.88
May 2012	< 1.0	968	8.15
SVE/AS Ends August 2012			
May 2013	< 10.0	1,000	8.13
ORC® Socks Installed August 2014			
November 2014	< 5.0	886	8.36
September 2015	< 2.5	655	8.31
ORC® Socks Removed September 2015			
January 2016	< 2.5	413	8.53
ORC® Socks Installed July 2018			
December 2018	< 1.0	127	8.33
September 2019	< 1.0	19.9	8.2
ORC® Socks Removed September 2019			
February 2020	< 1.0	64.7	8.25
December 2020	< 1.0	293	8.35
July 2021	< 1.0	237	8.1

MW-3 (Upgradient)

Total Depth: 35 feet bgs Screened Interval: 5 - 35 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Aquifer Water Quality Standard is 94 µg/L	Depth to Water (feet)
June 1996	31	Not Analyzed	8.39
September 1997	1.4	Not Analyzed	7.83
December 1999	4.6	Not Analyzed	8.6
SVE/AS Began September 2002			
February 2003	1,500	750	8.13
SVE/AS Ends November 2003			
March 2004	2	23	8.44
June 2007	< 1.0	< 5	8.49
SVE/AS Began September 2008			
August 2010	< 1.0	1.5	8.67
May 2012	< 1.0	2.3	8.6
SVE/AS Ends August 2012			
December 2013	< 1.0	4.4	8.76
January 2016	< 0.5	3.7	8.97
December 2018	< 1.0	0.998	8.82
December 2019	< 1.0	0.943	8.6
February 2020	< 1.0	0.546	8.75
December 2020	< 1.0	0.497	8.83
July 2021	< 1.0	0.72	8.45

MW-8 (Upgradient)
Total Depth: 20 feet bgs Screened Interval: 5 - 20 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to Water (feet)
SVE/AS Began September 2008			
May 2012	< 1.0	< 1.0	8.28
SVE/AS Ends August 2012			
June 2015	< 0.21	0.4	8.26
December 2018	< 1.0	< 1.0	8.5
December 2019	< 1.0	< 1.0	8.3
December 2020	< 1.0	0.13	8.5
July 2021	< 1.0	< 1.0	8.11

VE-2 (Upgradient)
Total Depth: 35 feet bgs Screened Interval: 5 - 35 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Ethylbenzene Aquifer Water Quality Standard is 700 µg/L	Depth to Water (feet)
December 1999	6,000	Not Analyzed	580	8.07
SVE/AS Began September 2002				
February 2003	2,200	4,300	150	8.41
September 2003	350	550	< 40	7.68
SVE/AS Ends November 2003				
November 2004	670	310	160	7.86
November 2005	750	270	200	8.23
November 2006	560	140	120	8.17
June 2007	1,100	340	390	8.03
June 2008	680	160	150	8.05
SVE/AS Began September 2008				
December 2009	300	54	140	8.01
August 2010	410	30	270	7.98
December 2011	305	15.6	285	7.89
August 2012	343	11.5	344	8.41
SVE/AS Ends August 2012				
December 2013	267	< 5.0	328	8.14
ORC® Socks Installed August 2014				
November 2014	604	< 10	707	8.2
June 2015	570	< 2.0	570	7.92
ORC® Socks Removed September 2015				

January 2016	266	< 2.5	266	8.35
ORC® Socks Installed July 2018				
December 2018	74.7	< 1.0	54.6	8.2
August 2019	113	< 1.0	79.9	7.97
ORC® Socks Removed September 2019				
December 2019	75.7	< 1.0	67.5	7.96
February 2020	42.6	< 1.0	60.8	8.1
December 2020	59.6	< 1.0	48.2	8.16
July 2021	674	< 1.0	747	7.85

MW-2 (cross gradient)
Total Depth: 35 feet bgs Screened Interval: 5 - 35 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to Water (feet)
June 1996	5.4	Not Analyzed	7
September 1997	5.8	Not Analyzed	6.45
March 1998	16	Not Analyzed	6.7
June 2002	< 1.0	41	7.21
SVE/AS Began September 2002			
February 2003	< 2.0	61	NA
SVE/AS Ends November 2003			
November 2005	< 1.0	45	7.42
SVE/AS Began September 2008			
December 2008	< 1.0	< 5.0	7.25
March 2010	< 1.0	6	7.34
SVE/AS Ends August 2012			
December 2012	< 1.0	< 1.0	7.34
September 2015	< 0.5	0.21	7.4
December 2018	< 1.0	< 1.0	7.5
February 2020	< 1.0	< 1.0	7.45
December 2020	< 1.0	< 1.0	7.53
July 2021	< 1.0	< 1.0	7.09

MW-4 (cross gradient)
Total Depth: 35 feet bgs Screened Interval: 5 - 35 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to Water (feet)
June 1996	< 0.5	Not Analyzed	8.03
December 1997	< 0.5	Not Analyzed	8.03

June 2002	< 1.0	Not Analyzed	8.11
SVE/AS Began September 2002			
SVE/AS Ends November 2003			
May 2004	< 1.0	1.3	8.01
November 2005	< 1.0	540	8.29
June 2007	< 1.0	< 5	8.11
June 2008	< 1.0	< 5	8.05
SVE/AS Began September 2008			
December 2009	< 1.0	< 1	8.26
September 2011	< 1.0	96.7	8.24
August 2012	< 1.0	9.6	8.26
SVE/AS Ends August 2012			
May 2013	< 1.0	328	8.28
April 2015	< 0.073	761	8.21
January 2016	< 2.5	721	8.62
September 2017	< 20	530	8.34
June 2018	< 1.0	306	8.3
ORC® Socks Installed July 2018			
December 2018	< 10	230	8.46
September 2019	< 1.0	192	8.29
ORC® Socks Removed September 2019			
December 2019	< 1.0	234	8.1
February 2020	< 1.0	317	8.4
December 2020	< 1.0	191	8.45
July 2021	< 1.0	250	8.2

VE-3 (cross gradient)
Total Depth: 10 feet bgs Screened Interval: 5 - 10 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to Water (feet)
December 1999	1.6	Not Analyzed	8.95
SVE/AS Began September 2002			
February 2003	42	1,200	8.48
SVE/AS Ends November 2003			
May 2004	11	280	8.94
November 2005	10	18	9.12
June 2008	16	28	8.93
SVE/AS Began September 2008			
December 2009	< 1.0	3.6	9.16
May 2010	3.8	12	9.12
February 2011	< 1.0	1.5	7.23

August 2012	Dry	Dry	Dry
SVE/AS Ends August 2012			
December 2012 to Present - Dry			

MW-5 (downgradient)
Total Depth: 35 feet bgs Screened Interval: 5 - 35 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to Water (feet)
December 1997	< 0.5	Not Analyzed	7.64
December 1999	< 1.0	Not Analyzed	6.69
June 2002	< 1.0	Not Analyzed	6.67
SVE/AS Began September 2002			
SVE/AS Ends November 2003			
November 2004	< 1.0	30	6.43
November 2006	< 1.0	92	6.82
June 2008	< 1.0	40	6.66
SVE/AS Began September 2008			
December 2009	< 1.0	4.4	6.82
December 2011	< 1.0	9.8	6.82
August 2012	< 1.0	20.5	6.89
SVE/AS Ends August 2012			
December 2013	< 1.0	16.9	6.96
September 2015	< 0.5	26.1	6.94
June 2018	< 1.0	43.4	6.84
September 2019	< 1.0	28.2	6.84
December 2019	< 1.0	92.5	7.21
February 2020	< 1.0	34.8	7.5
December 2020	< 1.0	33.6	7.54
July 2021	< 1.0	67.6	6.79

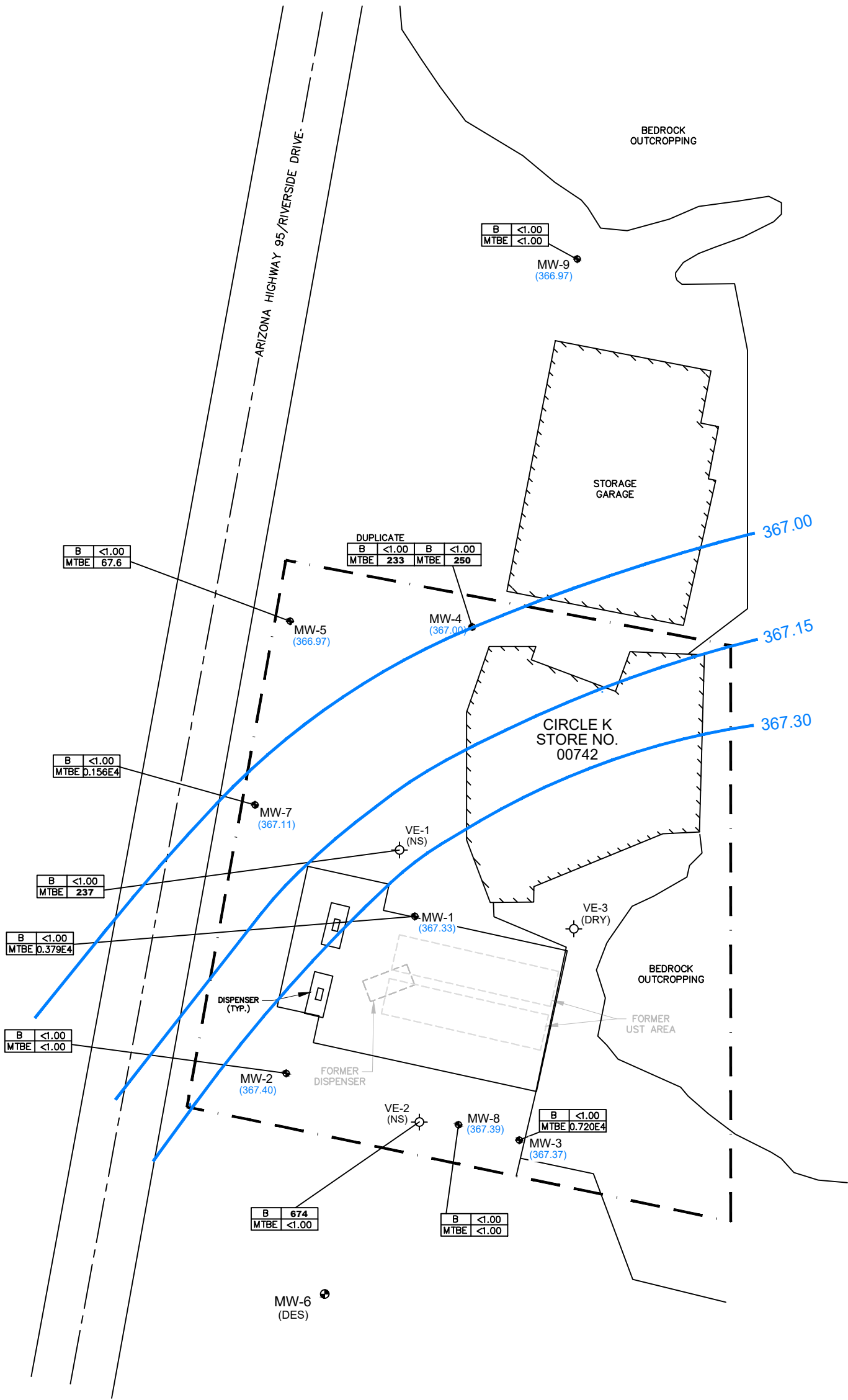
MW-7 (downgradient)
Total Depth: 35 feet bgs Screened Interval: 5 - 35 feet bgs

Date	Benzene Aquifer Water Quality Standard 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to Water (feet)
December 1997	< 0.5	Not Analyzed	7.81
June 2002	< 1.0	< 5.0	6.66
SVE/AS Began September 2002			
SVE/AS Ends November 2003			
November 2005	< 1.0	< 5.0	6.88

SVE/AS Began September 2008			
December 2008	< 1.0	< 5.0	6.63
December 2011	< 1.0	< 1.0	6.82
SVE/AS Ends August 2012			
December 2013	< 1.0	< 1.0	6.96
January 2016	< 0.5	< 0.5	7.16
December 2019	< 1.0	< 1.0	6.61
February 2020	< 1.0	< 1.0	6.87
December 2020	< 1.0	0.125	6.91
July 2021	< 1.0	0.156	6.6

MW-9 (downgradient)
Total Depth: 35 feet bgs Screened Interval: 5 - 35 feet bgs

Date	Benzene Aquifer Water Quality Standard is 5 µg/L	MTBE Tier 1 Corrective Action Standard is 94 µg/L	Depth to Water (feet)
July 2017	< 1.0	< 5.0	9.21
December 2019	< 1.0	< 1.0	9.01
February 2020	< 1.0	< 1.0	9.3
December 2020	< 1.0	< 1.0	9.3
July 2021	< 1.0	< 1.0	9.15



LEGEND

B	<1.00	BENZENE
MTBE	<1.00	METHYL TERT BUTYL ETHER

ALL ANALYTICAL RESULTS REPORTED IN MICROGRAMS PER LITER (µg/L)

BOLD CONCENTRATION EQUALS OR EXCEEDS ADEQ ESTABLISHED AWQS OR TIER 1 CLEANUP STANDARD

E4 - CONCENTRATION ESTIMATED; ANALYTE BELOW LABORATORY MINIMUM REPORTING LIMIT BUT ABOVE LABORATORY DETECTION LIMIT

MW-4 GROUNDWATER MONITOR WELL

VE-1 VAPOR EXTRACTION WELL

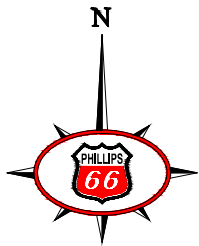
(366.97) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)

367.30 GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL)

(DES) DESTROYED ~2005

(NS) NOT SURVEYED

APPROXIMATE PROPERTY BOUNDARY



APPROX. SCALE, FT

NOTE: SCALE AND LOCATIONS ARE APPROXIMATE.

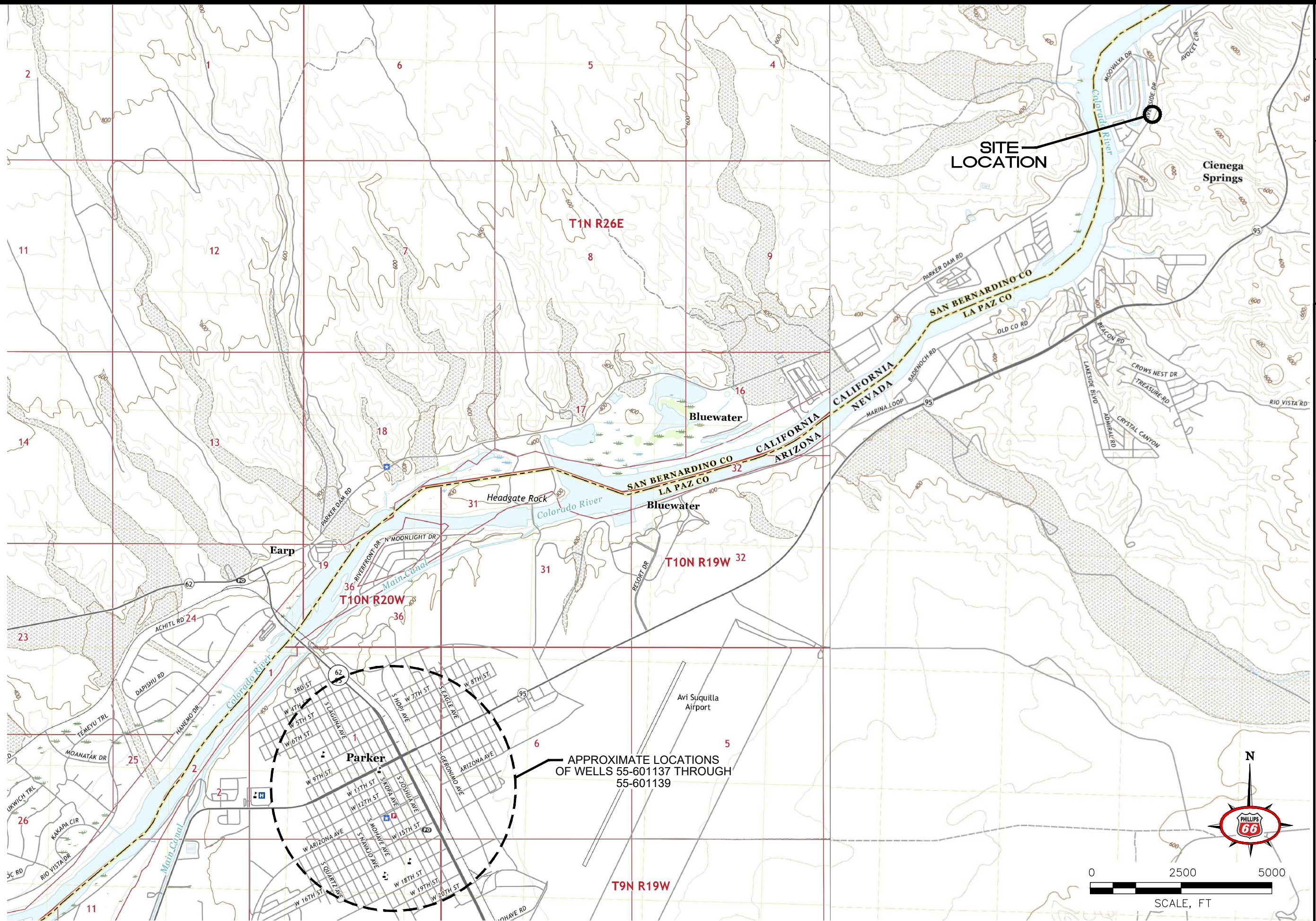
GROUNDWATER CONDITIONS MAP
(07/21-23/21)

CIRCLE K STORE NO. 00742
8861 RIVERSIDE DRIVE
PARKER, ARIZONA 85344

PROJECT NUMBER:	1052074208	DATE:	8/23/21	FIGURE
APPROVED BY:	DP	DRAWN BY:	BK	1

9185 S. Farmer Ave., Ste. #111
Tempe, Arizona 85284-2912
Ph: (480) 894-2056 *** Fax: (480) 894-2497

S:\Projects-BST\Phillips 66 Company (34.75000 ConocoPhillips)\2700742 (Parker)\CADD\VICINITY.dwg



SOURCE: USGS TOPO MAP, PARKER, AZ & CROSS ROADS, CA-AZ QUADS, 2018, SECTION 22

SITE VICINITY MAP

CIRCLE K STORE NO. 00742
8861 RIVERSIDE DRIVE
PARKER, ARIZONA 85344

PROJECT NUMBER: 1052074207

APPROVED BY: DP

DATE: 4/2/20

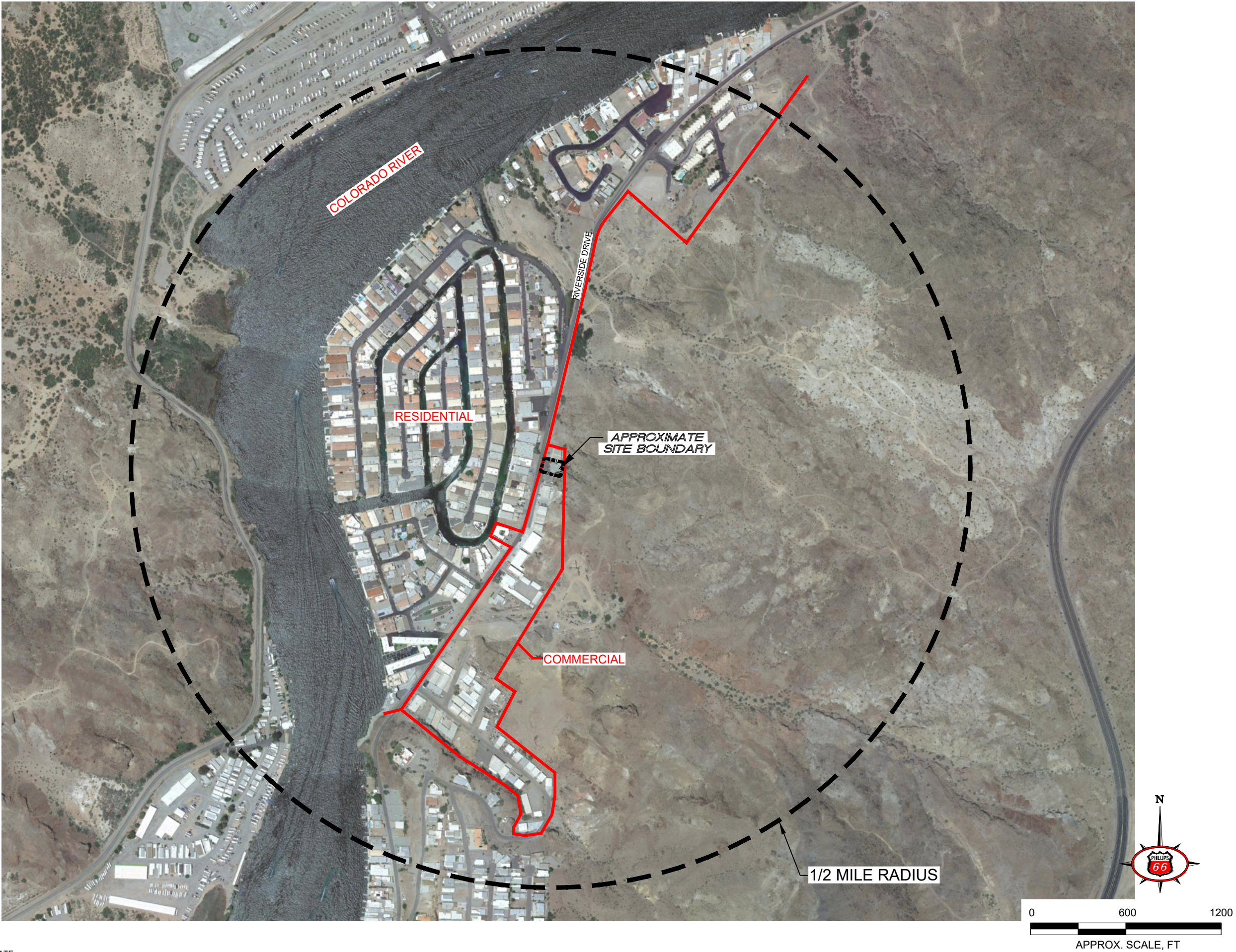
DRAWN BY: BK

FIGURE 4

ATC
9185 S. Farmer Ave., Ste. #111
Tempe, Arizona 85284-2912
Ph: (480) 894-2056 *** Fax: (480) 894-2497

S:\Projects-BST\Phillips 66 Company (34.75000 ConocoPhillips)\2700742 (Parker)\CADD\ADJPROP.dwg

SOURCE: GOOGLE EARTH PRO, 6/16/17
NOTE: SCALE AND LOCATIONS ARE APPROXIMATE

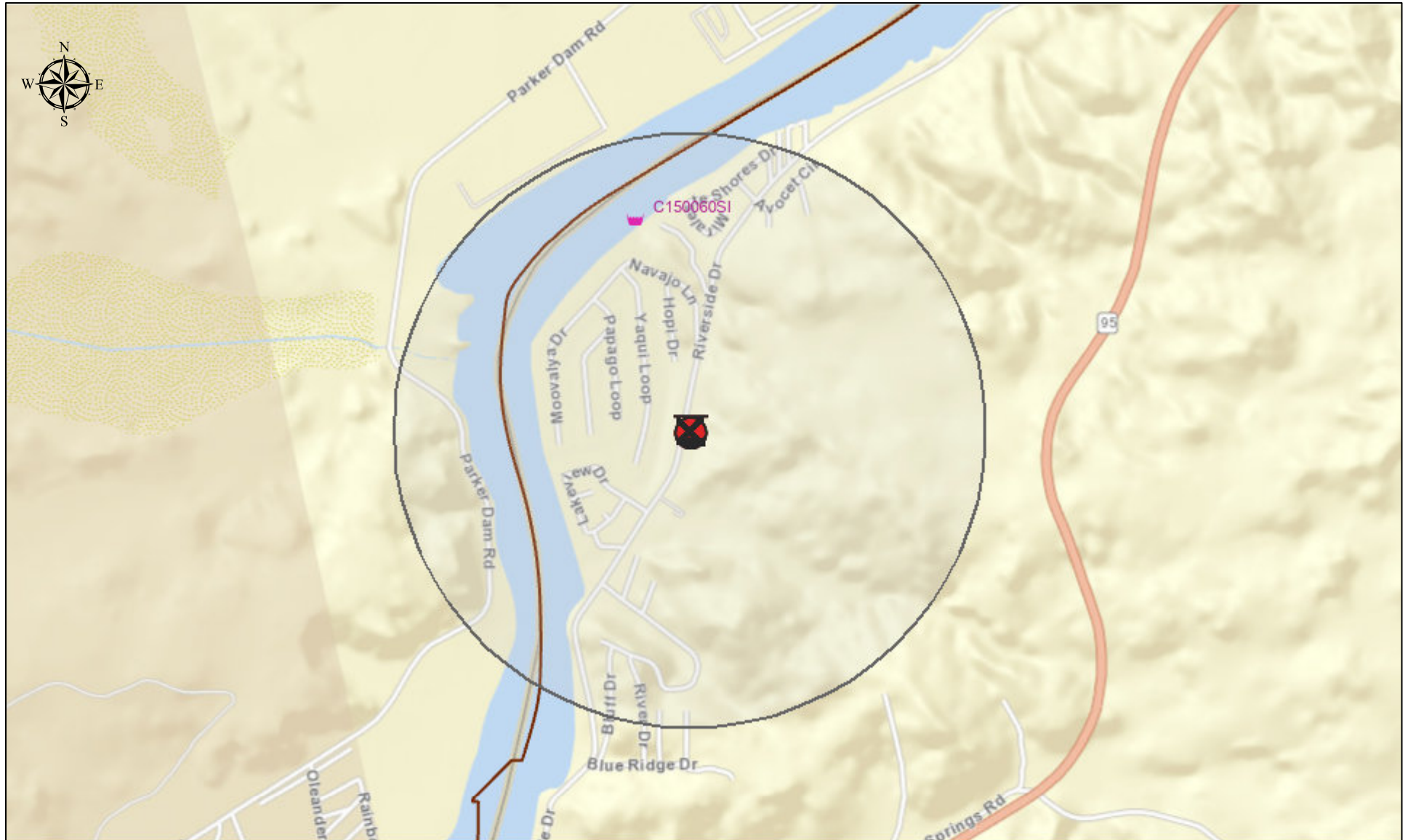


ADJACENT PROPERTIES MAP



CIRCLE K STORE NO. 00742
8861 RIVERSIDE DRIVE
PARKER, ARIZONA 85344

PROJECT NUMBER: 1052074207	DATE: 4/2/20	FIGURE 5
APPROVED BY: DP	DRAWN BY: BK	
ATC 9185 S. Farmer Ave., Ste. #111 Tempe, Arizona 85284-2912 Ph: (480) 894-2056 *** Fax: (480) 894-2497		



Receptor Survey



1/25/2022

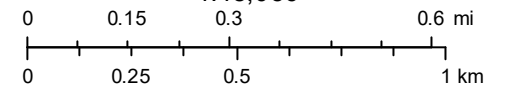
-  Wells - Drinking Water - Active
-  Surface Water - Drinking Water Intake - Active

UST - Releases

-  Closed
-  Confirmed

-  False Alarm
-  Suspected
-  Counties

1:18,056



The Arizona Department of Environmental Quality has compiled this map as a service to our customers using information from various sources. ADEQ cannot ensure that the information is accurate, current or complete. Neither the information presented nor the maps themselves are official documents.

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

TABLE 4
HISTORICAL GROUNDWATER FLOW DIRECTION AND GRADIENT

Circle K Store No. 00742
8861 Riverside Drive, Parker, Arizona 85344

Gauging Date	Bearing (degrees)	Hydraulic Gradient
05/09/12	360	0.0023
08/07/12	18	0.0022
12/10/12	105	0.0219
5/21-22/13	36	0.0030
9/4-5/13	297	0.0193
12/9-10/13	338	0.0018
11/24-25/14	359	0.0022
4/1-2/15	352	0.0028
6/22-23/15	349	0.0034
9/28-29/15	349	0.0029
7/5/2016	5	0.0032
7/20/2017	2	0.0034
9/20/2017	8	0.0027
6/14/2018	343	0.0033
9/25/2018	38	0.0027
12/27/2018	12	0.0021
3/19/2019	33	0.0019
6/24/2019	1	0.0025
9/12/2019	356	0.0025
12/2/2019	343	0.0008
2/17/2020	11	0.0020
12/8/2020	350	0.0020
7/23/2021	22	0.0033
Average	178	0.0041

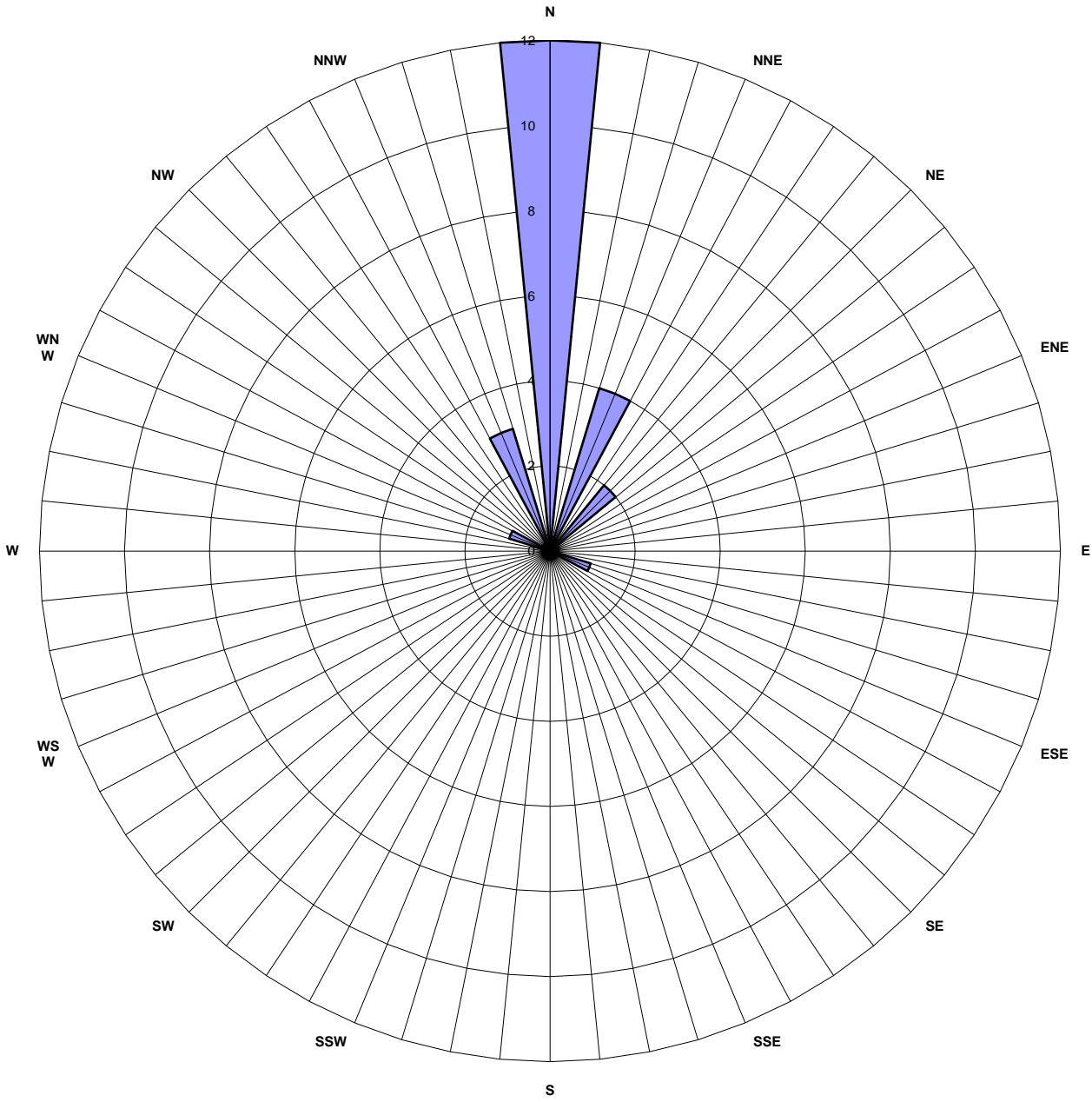
Notes:

Flow direction (bearing) and hydraulic gradient determined using 3-Point Solution based on data collected at monitor wells MW-2, MW-4 and MW-8.

Appendix D

Groundwater Flow Direction Rose Diagram

Circle K Store No. 00742
8861 Riverside Drive
Parker, Arizona 85344



Groundwater Flow Direction

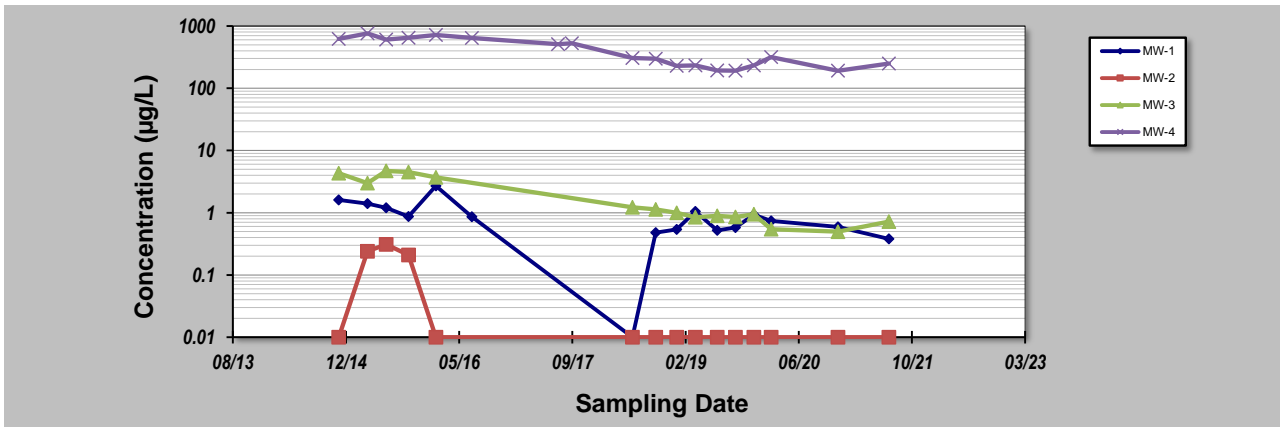
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 9-Aug-21
 Facility Name: Circle K Store No. 00742
 Conducted By: D. Pike

Job ID: 1052074208
 Constituent: MTBE
 Concentration Units: µg/L

Sampling Point ID:		MW-1	MW-2	MW-3	MW-4			
Sampling Event	Sampling Date	MTBE CONCENTRATION (µg/L)						
1	11/25/14	1.6	0.01	4.3	620			
2	04/01/15	1.4	0.24	3.0	761			
3	06/22/15	1.2	0.31	4.7	608			
4	09/29/15	0.87	0.21	4.5	651			
5	01/28/16	2.7	0.01	3.7	721			
6	07/05/16	0.86			643			
7	07/20/17				510			
8	09/20/17				530			
9	06/14/18	0.01	0.01	1.22	306			
10	09/25/18	0.48	0.01	1.13	298			
11	12/27/18	0.539	0.01	0.998	230			
12	03/19/19	1.05	0.01	0.850	234			
13	06/24/19	0.521	0.01	0.890	193			
14	09/12/19	0.579	0.01	0.854	192			
15	12/03/19	0.932	0.01	0.943	234			
16	02/17/20	0.737	0.01	0.546	317			
17	12/08/20	0.59	0.01	0.497	191			
18	07/21/21	0.379	0.01	0.72	250			
19								
20								
Coefficient of Variation:		0.69	1.80	0.85	0.52			
Mann-Kendall Statistic (S):		-53	-34	-87	-115			
Confidence Factor:		98.5%	93.0%	>99.9%	>99.9%			
Concentration Trend:		Decreasing	Prob. Decreasing	Decreasing	Decreasing			



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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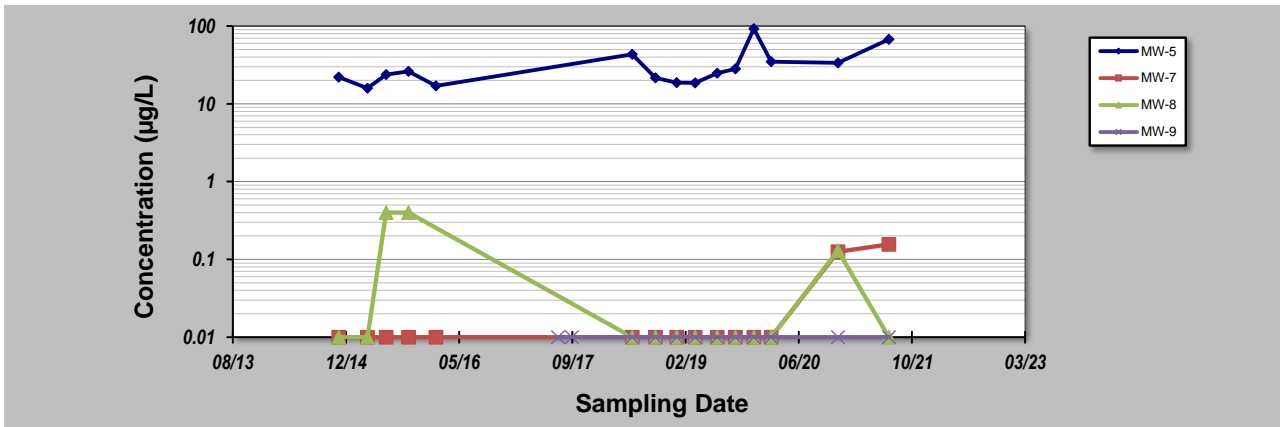
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 9-Aug-21
 Facility Name: Circle K Store No. 00742
 Conducted By: D. Pike

Job ID: 1052074208
 Constituent: MTBE
 Concentration Units: µg/L

Sampling Point ID:		MW-5	MW-7	MW-8	MW-9			
Sampling Event	Sampling Date	MTBE CONCENTRATION (µg/L)						
1	11/25/14	22	0.01	0.01				
2	04/01/15	15.9	0.01	0.01				
3	06/22/15	23.8	0.01	0.40				
4	09/29/15	26.1	0.01	0.40				
5	01/28/16	17.0	0.01					
6	07/05/16							
7	07/20/17				0.01			
8	09/20/17				0.01			
9	06/13/18	43.4	0.01	0.01	0.01			
10	09/24/18	21.6	0.01	0.01	0.01			
11	12/27/18	18.7	0.01	0.01	0.01			
12	03/18/19	18.6	0.01	0.01	0.01			
13	06/24/19	24.8	0.01	0.01	0.01			
14	09/12/19	28.2	0.01	0.01	0.01			
15	12/03/19	92.5	0.01	0.01	0.01			
16	02/17/20	34.8	0.01	0.01	0.01			
17	12/08/20	33.6	0.125	0.13	0.01			
18	07/21/21	67.6	0.156	0.01	0.01			
19								
20								
Coefficient of Variation:		0.63	1.71	1.96	0.00			
Mann-Kendall Statistic (S):		53	25	-10	0			
Confidence Factor:		99.1%	85.7%	66.9%	47.6%			
Concentration Trend:		Increasing	No Trend	No Trend	Stable			



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S > 0$) or decreasing ($S < 0$): $> 95\%$ = Increasing or Decreasing; $\geq 90\%$ = Probably Increasing or Probably Decreasing; $< 90\%$ and $S > 0$ = No Trend; $< 90\%$, $S \leq 0$, and $COV \geq 1$ = No Trend; $< 90\%$ and $COV < 1$ = Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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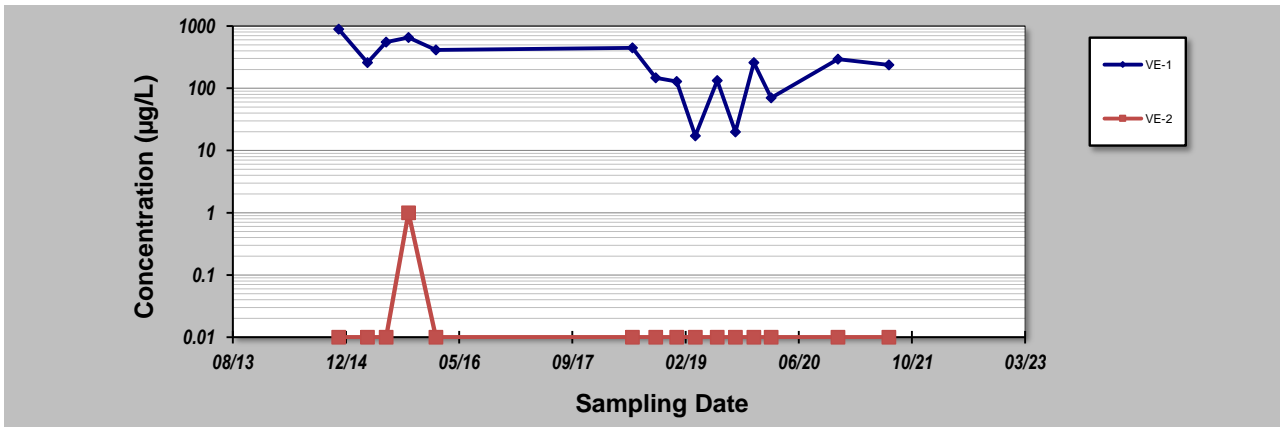
GSI MANN-KENDALL TOOLKIT

for Constituent Trend Analysis

Evaluation Date: 9-Aug-21
 Facility Name: Circle K Store No. 00742
 Conducted By: D. Pike

Job ID: 1052074208
 Constituent: MTBE
 Concentration Units: µg/L

Sampling Point ID:		VE-1	VE-2					
Sampling Event	Sampling Date	MTBE CONCENTRATION (µg/L)						
1	11/25/14	886	0.01					
2	04/01/15	258	0.01					
3	06/22/15	550	0.01					
4	09/29/15	655	1.0					
5	01/28/16	413	0.01					
6	07/05/16							
7	07/20/17							
8	09/20/17							
9	06/14/18	446	0.01					
10	09/25/18	147	0.01					
11	12/27/18	128	0.01					
12	03/19/19	17.2	0.01					
13	06/24/19	133	0.01					
14	09/12/19	19.9	0.01					
15	12/03/19	259	0.01					
16	02/17/20	70.3	0.01					
17	12/08/20	293	0.01					
18	07/21/21	237	0.01					
19								
20								
Coefficient of Variation:		0.88	3.44					
Mann-Kendall Statistic (S):		-55	-9					
Confidence Factor:		99.3%	63.9%					
Concentration Trend:		Decreasing	No Trend					



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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for Constituent Trend Analysis

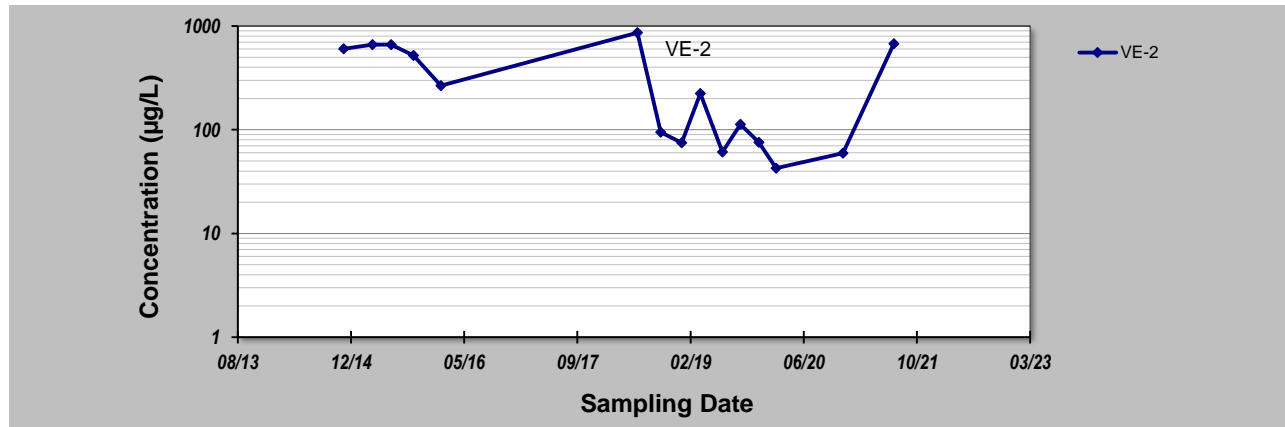
Evaluation Date: 9-Aug-21
 Facility Name: Circle K Store No. 00742
 Conducted By: D. Pike

Job ID: 1052074208
 Constituent: Benzene
 Concentration Units: µg/L

Sampling Point ID: VE-2

Sampling Event	Sampling Date	BENZENE CONCENTRATION (µg/L)						
1	11/25/14	604						
2	04/01/15	661						
3	06/22/15	663						
4	09/29/15	519						
5	01/28/16	266						
6	07/05/16							
7	07/20/17							
8	09/20/17							
9	06/14/18	863						
10	09/25/18	94.5						
11	12/27/18	74.7						
12	03/19/19	224						
13	06/25/19	61.1						
14	09/12/19	113						
15	12/03/19	75.7						
16	02/17/20	42.6						
17	12/08/20	59.6						
18	07/21/21	674						
19								
20								

Coefficient of Variation:	0.88							
Mann-Kendall Statistic (S):	-47							
Confidence Factor:	99.0%							
Concentration Trend:	Decreasing							



Notes:

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